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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,076	02/19/2004	Chun-Cheng Lin	10011-00048	4532
74603 7590 01/25/2010 IPC Intellectual Property Connections, INC. 299 Old County Road, Suite 28 San Carlos, CA 94070				
EXAMINER				
ARNOLD, ERNST V				
ART UNIT		PAPER NUMBER		
1616				
NOTIFICATION DATE		DELIVERY MODE		
01/25/2010		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/782,076

Applicant(s)

LIN ET AL.

Examiner

ERNST V. ARNOLD

Art Unit

1616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 October 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/C)
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date: _____

DETAILED ACTION

Claims 1-20 have been cancelled. Claims 21-40 are under examination.

Applicant's amendment has necessitated a new ground of rejection. The claims are not in condition for allowance. Accordingly, this Action is FINAL.

Comment: In claim 37, monosaccharide is misspelled as 'monosaccaride'.

Withdrawn rejections:

Applicant's amendments and arguments filed 10/13/09 are acknowledged and have been fully considered. Any rejection and/or objection not specifically addressed below is herein withdrawn. Claims 21-25, 29, 30, 34, 35, 37 and 38 were rejected under 35 U.S.C. 102(a) as being anticipated by Lin et al. JACS 2002, 124, 3508-3509.

Applicant has filed a 1.131 Declaration to overcome this rejection. Accordingly, it is withdrawn. Claims 21-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over de la Fuente et al. (Angew Chem 2001, 113 (12), 2317-2321) in view of Lin et al. (JACS 2002, 124, 3508-3509) and Benhamou (Colloidal Gold 1989 Academic Press, Inc, Sand Diego, CA chapter 4 pages 95-141) and Sandvig et al. (The Journal of Cell Biology 1989, 108, 1331-1343). Applicant's amendments and Declaration have overcome this rejection and it is withdrawn.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 27 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 27 introduces new matter as the claim recites the limitation: "non-human subject" There is no support in the specification for this limitation. The limitation of: "non-human subject" was not described in the specification as filed, and person skilled in the art would not recognize in the applicant's disclosure a description of the invention as presently claimed. The specification discloses "animals such as a mammal" in [0038] but does not describe the instantly claimed limitation. "Non-human subject" also embraces plants and species that are not mammals and is therefore broader in scope than what is disclosed in the specification as filed. There is no guidance in the specification to select "non-human subject" and from MPEP 2163.06: "Applicant should therefore specifically point out the support for any amendments made to the disclosure." Applicant has not directed the Examiner to the support in the specification for the amendments. Therefore, it is the Examiner's position that the disclosure does not reasonably convey that the inventor had

possession of the subject matter of the amendment at the time of filing of the instant application.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 27 and 39 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 27 is directed to non-human living subject matter and claims 39 is directed to human living subject matter. Since the living matter is not the result of Applicant's intervention it is deemed to fall under non-statutory subject matter. See MPEP 2105.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

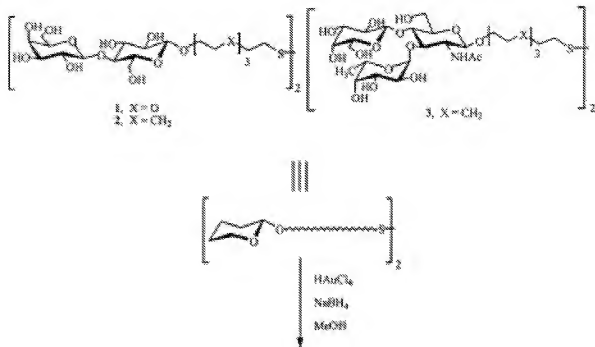
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

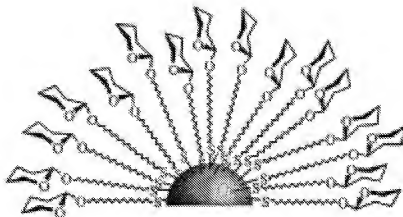
Claims 21, 22, 23, 35, and 36 remain/are rejected under 35 U.S.C. 102(b) as being anticipated by de la Fuente et al. (Angew Chem 2001, 113 (12), 2317-2321).

De la Fuente et al. disclose gold glyconanoparticles as water soluble polyvalent models to study carbohydrate interactions (title and scheme 1). As can be seen in

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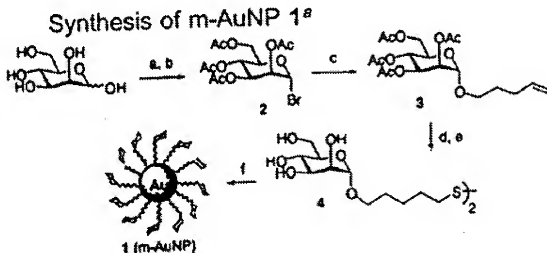
Scheme 1, a plurality of mono-, -oligo- and poly-saccharides attached to a gold particle is disclosed by de la Fuente.





Scheme 1. Preparation of gold (gray hemisphere) glyconanoparticles.

Scheme 1 looks remarkably similar to Applicant's own figure 1 reproduced below:



De la Fuente et al. disclose a diameter of 1.8 nm which is about 2 nm of instant claim 21 (page 2319) and as shown in scheme 1 a monosaccharide is attached to the nanoparticle thus anticipated instant claims 22 and 35. De la Fuente et al. disclose at least 150 molecules of saccharide per 201 gold atoms (page 2319). Please note that

these are gold atoms which the nanoparticles comprise and thus anticipates instant claims 23 and 36. The composition doesn't have any iron and is not magnetic. It does not matter where the infectious agent is located, bacteria, virus etc... or host organism because this is a composition claim. De la Fuente et al. Disclose the conjugates are useful for probing protein-carbohydrate interactions (page 2318-2322).

Response to arguments:

Applicant asserts that the reference does not teach a diameter of about 2-9 nm. Respectfully, the Examiner cannot agree. The reference teaches 1.8 nm which is about 2 nm as instantly claimed. The rejection is maintained.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 21-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over de la Fuente et al. (Angew Chem 2001, 113 (12), 2317-2321) and Penades et al. (WO 2002/032404).

Applicant claims:

(Currently amended) A saccharide-conjugated nanoparticle comprising:

- (a) a core gold nanoparticle, comprising gold atoms, without Fe atoms and having no magnetic property; {{and}}
- (b) a plurality of saccharide molecules; and
- (c) a linker, linking-attached the plurality of saccharide molecules to the core gold nanoparticle; {{ff,}}

wherein the saccharide-conjugated nanoparticle has an average diameter of about 2-9 nm, each of the saccharide molecules has a specific binding affinity to a target protein.

Determination of the scope and content of the prior art

(MPEP 2141.01)

The reference of de la Fuente et al. is discussed in detail above and that discussion is hereby incorporated by reference.

Penades et al. teach gold nanoparticles with a plurality, at least 100 ligands, of monosaccharide ligand linked to the metallic core via a sulphide group (page 2 of 16; pages 3-4 of 16 and claims 1-15 and 26). Penades et al. teach carbohydrate-protein

bacterial and viral infection interactions can be studied or modulated with the nanoparticles (page 3 of 12). Antigens attached to the core are taught (claim 25).

Ascertainment of the difference between the prior art and the claims

(MPEP 2141.02)

1. The difference between the instant application and de la Fuente et al. is that de la Fuente et al. do not expressly teach the linker as 5-thio-pentan-1-ol. This deficiency in de la Fuente et al. is cured by Penades et al.

2. The difference between the instant application and de la Fuente et al. is that de la Fuente et al. do not expressly teach a pK antigen or a pathogen bound to the nanoparticle selected from the group consisting of bacteria, viruses, mycoplasma and fungi. This deficiency in de la Fuente et al. is cured by the teachings of Penades et al.

3. The difference between the instant application and de la Fuente et al. is that de la Fuente et al. do not expressly teach the monosaccharide are selected from the group consisting of mannose, galactose and glucose. This deficiency in de la Fuente et al. is cured by the teachings of Penades et al.

Finding of prima facie obviousness

Rational and Motivation (MPEP 2142-2143)

1. It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to use the linker 5-thio-pentan-1-ol, as suggested by

Penades et al. in the composition of de la Fuente et al., and produce the instant invention.

One of ordinary skill in the art would have been motivated to do this because de la Fuente et al. teach the concept of using a thiol linker and Penades et al. teaches that protocols for covalently attaching ligands are known in the art and a preferred method employs thiol derivatized carbohydrate moieties (page 4 of 16). Thus, it is then merely judicious selection of the thiol linker in the absence of evidence to the contrary.

2. It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to have a pK antigen or pathogen bound to the nanoparticle selected from the group consisting of bacteria, viruses, mycoplasma and fungi to the composition of de la Fuente et al., as suggested by Penades et al., and produce the instant invention.

One of ordinary skill in the art would have been motivated to do this because de la Fuente et al. already teach a Le^X-antigen aggregate (page 2320, left column) and it is merely selection of the proper antigen such as Pk antigen to bind the corresponding pathogen such as bacteria, viruses, mycoplasma and fungi in the absence of evidence to the contrary. In addition, Penades et al. establish this concept of attaching antigens and interacting the nanoparticle with the pathogen.

3. It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to use the monosaccharides instantly claimed, as suggested by Penades et al., and produce the instant invention.

One of ordinary skill in the art would have been motivated to do this because de la Fuente et al. already show monosaccharides attached to the core and Penades et al. also teach attaching monosaccharides to the core and there is a finite list of monosaccharides for the artisan to select from which are known in the art.

In light of the forgoing discussion, the Examiner concludes that the subject matter defined by the instant claims would have been obvious within the meaning of 35 USC 103(a).

From the teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole was *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

Response to arguments:

Applicant's arguments are moot in view of the new grounds of rejection.

Conclusion

No claims are allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ernst V. Arnold whose telephone number is 571-272-8509. The examiner can normally be reached on M-F (7:15 am-4:45 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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/Ernst V Arnold/

Primary Examiner, Art Unit 1616